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**From:** MacNicholl, Peter@DTSC [Peter.MacNicholl@dtsc.ca.gov]  
**Sent:** 5/30/2018 10:03:17 PM  
**To:** Fennessy, Christopher [christopher.fennessy@Rocket.com]; Illadd@sprintmail.com; Keller, Lynn [Keller.Lynn@epa.gov]  
**CC:** MacDonald, Alex@Waterboards [Alex.MacDonald@waterboards.ca.gov]; Keller, Lynn [Keller.Lynn@epa.gov]; ROJAS-MICKELSON, DAEWON [rojas-mickelson.daewon@epa.gov]; jheple@ucde.ucdavis.edu; kenwg-1@comcast.net; gsg444@sbcglobal.net; Jack.zwald@gmail.com; rcr@rcresearch.us; ryan@lundquistcompany.com; pratibha.shalini@gmail.com; jreinkin@fcusd.org; eshort@fcusd.org; sahadev.kumar@gmail.com; Illadd@sprintmail.com  
**Subject:** RE: [EXTERNAL] First thoughts on Area 40 radiation data

I forwarded these comments to our Radiological staff with HERO. I will forward the draft responses when I receive them. Thank you.



**Peter MacNicholl, P.E.**  
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**From:** Fennessy, Christopher [mailto:christopher.fennessy@Rocket.com]  
**Sent:** Friday, May 25, 2018 7:34 AM  
**To:** Illadd@sprintmail.com; Keller, Lynn (Keller.Lynn@epa.gov) <Keller.Lynn@epa.gov>; MacNicholl, Peter@DTSC <Peter.MacNicholl@dtsc.ca.gov>  
**Cc:** MacDonald, Alex@Waterboards <Alex.MacDonald@waterboards.ca.gov>; Keller.Lynn@epa.gov; rojas-mickelson.daewon@epa.gov; jheple@ucde.ucdavis.edu; kenwg-1@comcast.net; gsg444@sbcglobal.net; Jack.zwald@gmail.com; rcr@rcresearch.us; ryan@lundquistcompany.com; pratibha.shalini@gmail.com; jreinkin@fcusd.org; eshort@fcusd.org; sahadev.kumar@gmail.com; Illadd@sprintmail.com; MacNicholl, Peter@DTSC <Peter.MacNicholl@dtsc.ca.gov>  
**Subject:** RE: [EXTERNAL] First thoughts on Area 40 radiation data

Hi Lynn and Peter - I received the following from Larry Ladd, Aerojet Superfund Site Community Advisory Group member. Can you please add these questions to the RAP questions from the public? If the EPA or DTSC radiologic group reviewer of the document is available to respond, I am sure Mr. Ladd would appreciate an early response. Thanks! Chris

Sent with BlackBerry Work ([www.blackberry.com](http://www.blackberry.com))

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**From:** Larry Ladd <Illadd@sprintmail.com>  
**Sent:** May 24, 2018 8:19 PM  
**To:** "Fennessy, Christopher" <[christopher.fennessy@Rocket.com](mailto:christopher.fennessy@Rocket.com)>

**Cc:** amacdonald@waterboards.ca.gov; Lynn Keller <Keller.Lynn@epa.gov>; Daewon <rojas-mickelson.daewon@epa.gov>; janis <jheple@ucde.ucdavis.edu>; Ken Green <kenwg-1@comcast.net>; Stephen Green <gsg444@sbcglobal.net>; Jack Zwald <Jack.zwald@gmail.com>; Chris Richardson <rcr@rcresearch.us>; Ryan Lundquist <ryan@lundquistcompany.com>; Pratibha Shalini <pratibha.shalini@gmail.com>; reinkin <jreinkin@fcusd.org>; ed short <eshort@fcusd.org>; Kumar Kalagara <sahadev.kumar@gmail.com>; lladd@sprintmail.com; Peter MacNicholl <Peter.MacNicholl@dtsc.ca.gov>

**Subject:** [EXTERNAL] First thoughts on Area 40 radiation data

Hi Chris. Please correct me if I am mistaken about any of these observations.

1. In the documents Alex sent me, the memo from Greenlee and Appendix A, there is no gamma ray data presented from the 2 acre 38B radioactive waste burn site within Area 40 itself, only from the aerial dispersal sampling to the single family home zone to the north-northeast and the drainage to the southwest that divides the apartments zone.
2. Boron rods were likely used in experiments with lightweight shielding for the NERVA reactor that warmed the hydrogen on the nuclear version of the third stage of the Saturn V. One of the points of using nuclear is the weight saved by not hauling the liquid oxygen that was carried in the conventional third stage manufactured by Douglas on the Rancho side of the site.
3. The relevant daughter product for irradiated boron is carbon 14.
4. There are anomalously no graphs of carbon 14 concentration vs gamma ray response or carbon 14 data in the gamma spectroscopy response table that is present for the other radioisotopes, but table 3 on page 9 shows the highest carbon 14 hits at sample 13 reported to be a Mariposa slate outcrop that also has the higher gamma counts per minute, sample 12 on the north fenceline with the single family home zone, and sample 27 in the creek that runs between the apartment complexes. Multiple samples were taken around 13 and 27, but not 12 on the north fenceline with the single family housing zone.